

Kriegsmarine

M3-UKW = B

M3-UKW = C

Short Weather Cypher

Decrypting a Kriegsmarine 3-rotor Short Weather Cypher Message

Note: The Kriegsmarine 3-rotor and temporarily modified 4-rotor Enigma machines were used by U-boats and converted fishing trawlers to relay weather information from the north and west, the directions from which Germany's weather came, to B.d.U. (U-boat Headquarters). These "floating weather observers" were critical to both German strategic (long-range) and tactical (short-range) battle planning.

Note: If you have not already printed off copies of these documents from the webpage, please return to the webpage procedure and do so now.

- [The Short Weather Cypher Decrypting Procedure](#)
- [Kriegsmarine M3-UKW = B and C Inner Settings](#)
- [Kriegsmarine M3-UKW = B and C Outer Settings](#)
- [Short Weather Cypher Tables \(A, C, DDD, E, G, K, L, M, PPP, R, T, V, W, and Z\)](#)
- [Table BB - Sea Area Grid Map](#)
- [Message Decryption Sheet - \(Example\)](#)
- [Message Decryption Sheet - \(Blank\)](#)

Note: We will be using our message from the "Encrypting and Sending a Kriegsmarine 3-rotor Short Weather Cypher Message" as our example in this procedure. Use the accompanying "Message Decryption Sheet – Example" as a guide to help you in decrypting your own message.

(Note: Using the blank "Message Decryption Sheet – Blank," you have already printed, decrypt your message following ours as an example.)

1. Rewrite the original message header of your message onto the appropriate lines of your "Message Decryption Sheet." Our example message header reads:

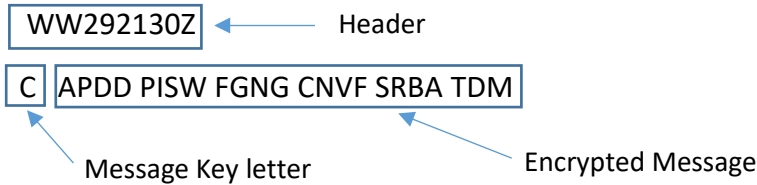


2. Our example message header on the lines would look like this. Yours will be different.

<u>W</u>	<u>W</u>	<u>2</u>	<u>9</u>	<u>2</u>	<u>1</u>	<u>3</u>	<u>0</u>	<u>Z</u>
weather report		date		time report sent				using Greenwich Mean Time

Message Key letter: C APDD PISW FGNG CNVF SRBA TDM Encrypted message letters 23 (no ice) or 24 (ice)

3. Locate the “Message Key letter” on the original message as shown above and below. Write that same Message Key letter into the “Message Key letter” box on your “Message Decryption Sheet” as shown below. Our example Message Key letter is “C.” Yours will probably be a different letter, depending on the date.



4. Using the “Kriegsmarine M3-UKW = B and C Inner Settings” sheet, verify that the number in the “date” column on the Kriegsmarine sheet and the numbers in the “date” blanks in the header correspond with the letter in the “For Wetterkurz Signal Only – Sp” (“Message Key”) column and the Message Key letter that you just wrote-down in step 3. If not, the message is not valid.

5. Locate the “Encrypted Message” section of the received message and the “Encrypted” column of the boxes under the “Box Numbers” column on the blank “Message Decryption Sheet - Blank.” Fill in the “Message Key letter” in the first “Decrypted” box. Our example is a “C.” Yours will be different.

6. One letter at a time, beginning with the first Encrypted Message letter, write the letters, in order, down the “Encrypted” column of boxes onto your “Message Description Sheet.” Our first four example boxes look like this:

Box Numbers

<u>Encrypted</u>	<u>Decrypted</u>
X	C
A	
P	
D	

Your first four boxes will, of course, be lettered differently.

7. When you are finished writing all of the encrypted message letters in the “Encrypted” column, you should have either 23 (no ice) or 24 (ice present) boxes with letters inside them. You are now ready to decrypt the letters and record the observed weather reported by the U-boat.

To Decrypt your Short Weather Cypher Message

8. Find your “Kriegsmarine M3-UKW=B and C Inner Settings” and “Kriegsmarine M3-UKW=B and C Outer Settings” sheets.
9. Using the “Kriegsmarine M3-UKW=B and C Inner Settings” sheet, scan down the “Date” column and select the correct date for today. For our example U-boat in this exercise, we are using the 29th day of the month. Note the matching letter “C” in the “For Wetterkurz Signal Only – Sp” column. (Sp is also referred to as the “Message Key.”)
10. The “UKW” column on the “Inner Settings” sheet shows “M3-B” for our “Date,” the 29th, which means that we will be using the Kriegsmarine M3-UKW=B reflector machine. If you will be using a UKW that has an “M3-C” reflector in this column, select the Kriegsmarine M3-UKW=C machine.
11. Open the cover of the Enigma simulator on your computer screen. Click on the letter “B,” located on the left end of the rotor shaft, until the indicator shows either “Kriegsmarine M3-UKW=B” or “Kriegsmarine M3-UKW=C,” depending on which machine you are using.

Historical Note: When the 4-rotor Enigma machine came into U-boat service beginning in February, 1942, the 4th rotor (thin reflector) was added to the left of rotor #1. In order to send a 3-rotor Short Weather Cypher message, this 4th rotor had to be “nulled-out.” This was done by setting the 4th rotor to “A” and the attached ring to “Z.” The reason why we are not troubled with this 4th rotor on our M3 simulator is that our excellent simulator programmer, Dirk Rijmenants, foresaw this problem and programmed the simulator to automatically go to three rotors when you select either of the “M3” settings. Great job, Dirk!

12. Remove rotors I, II, and III from the rotor shaft and store them in the box, in order, from left to right.
13. The “Inner Settings” table also gives you the rotor and ring settings that you will use. For our example Short Weather Cypher, we are using Sp (also called the Message Key) “C,” for the 29th day of the month, so our first rotor will be rotor III with ring setting Y. Now, set this first rotor and ring setting and install the rotor onto the left end of the rotor shaft.
14. Working from left to right, set and install the second rotor with its correct ring setting and then the third rotor with its correct ring setting onto the rotor shaft.
15. Close the Enigma cover.
16. Click on the Stecker plugboard. You will notice that the plugboard is numbered, not lettered.
17. Using the “Kriegsmarine M3-UKW=B and C Outer Settings” table, scan down the “Date” column and select the correct date for today. For our example U-boat, we are using the 29th day of the month. Note that the matching “For Wetterkurz Signal Only – Sp” column (also called the Message Key) is the letter “C,” just as it was for the Inner Settings in Step 9.
18. Set the Stecker plugs as indicated. Return to the Enigma top view.

19. The last column on the “Outer Settings” table is labeled “Basic Start Pos.(ition).” Dial-in the “Basic Start Position” letters into the three rotors, in order, from left to right. For our example U-boat, with Message Key letter C and Date 29, the Basic Start Position for the rotors is **DPU**. Your Basic Start Position for the rotors will probably be different.
20. Hover over the small metal plate at the bottom center of the Enigma machine simulator until “Show Textbox” appears. Click on it.
21. One letter at a time, beginning with “Encrypted” letter #2, click and hold on each encrypted letter. The “Decrypted” letter will both illuminate on the light panel and print-out on the bottom line in the textbox.
22. Record each decrypted letter in the corresponding “Decrypted” box as you work your way down the column in the “Box Numbers” section on your “Message Decryption Sheet – Blank.”
23. As you approach the end of the column, remember that boxes #21, #22, and #23 are used for the three-letter encoded signature of the U-boat if no ice is present. Use any three random letters. You may use your own three initials. Box #24 is left blank if no ice is present.
24. Boxes #22, #23, and #24 are used for the three letter encoded signature of the U-boat if ice is present. Use any three random letters. You may use your own three initials.
25. Locate your Short Weather Cypher Tables in the procedure.
26. Using your Message Decryption Sheet, locate each table using the “Title of Tables and Identifier Letter(s)” column that has been provided for you in the middle of the sheet.
27. Then, referring to the “Decrypted” letter that you have written in the corresponding box on that line, write the weather meaning for the decrypted letter inside the “Observed Weather” box for that letter.
28. Use the “Message Decryption Sheet” (Example) to help you complete the “Observed Weather” boxes.
29. Start with boxes #3 and #4.
30. Then do box #2.
31. Then do boxes #5 onward in order.